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Promoting Competition and Consumer Value in the 600 MHz Incentive Auction

July 16, 2013

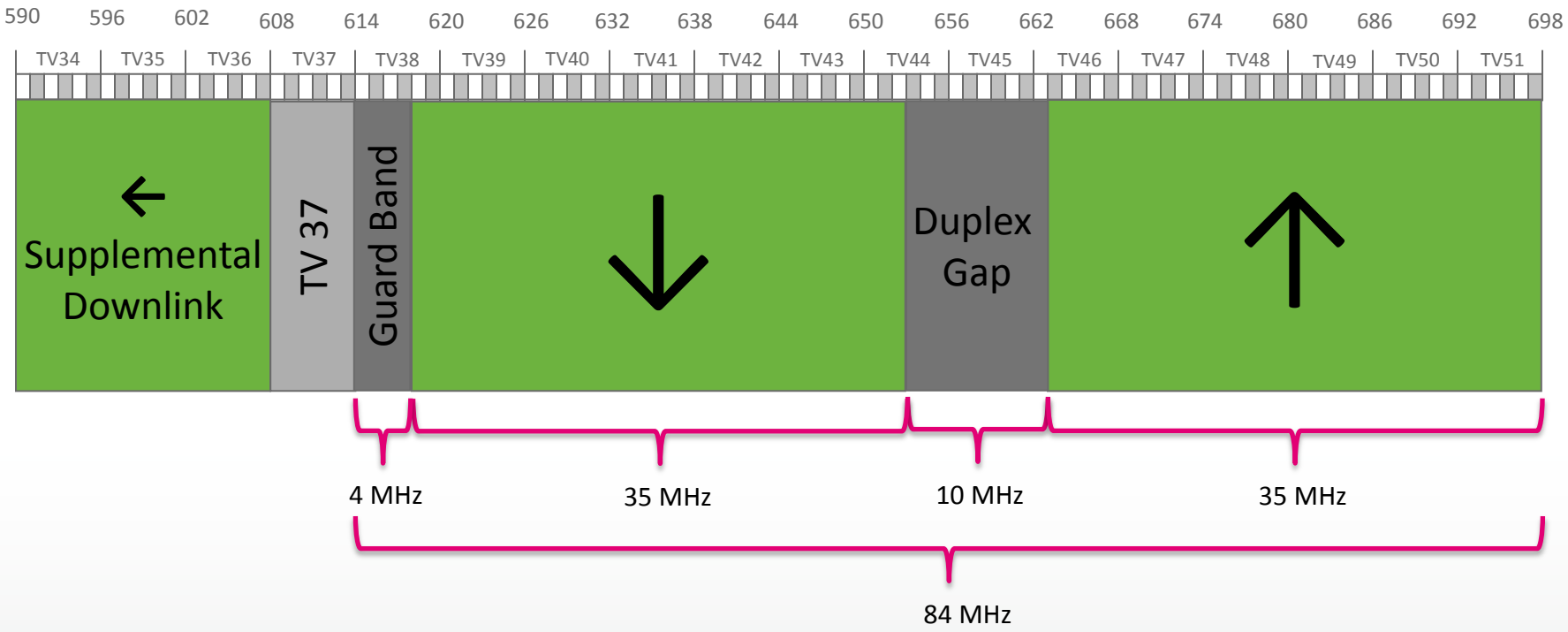
Introduction

1. Incentive Auction Goals
2. The 600 MHz Band Plan
3. Importance of a Spectrum Cap

Auction Success

- Maximizing the amount of paired spectrum available at auction and adopting a reasonable spectrum aggregation limit will:
  - Maximize benefits to consumers
  - Encourage auction participation
  - Secure FirstNet funding
  - Increase the amount of spectrum converted to mobile wireless use
  - Promote competition and innovation

T-Mobile's Proposed Band Plan



- This proposed band plan offers 70 MHz of paired spectrum
- T-Mobile supports maximizing paired spectrum while minimizing guard bands
- A Down from 51 band plan offers the most efficient configuration

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Evaluating Proposed Band Plans

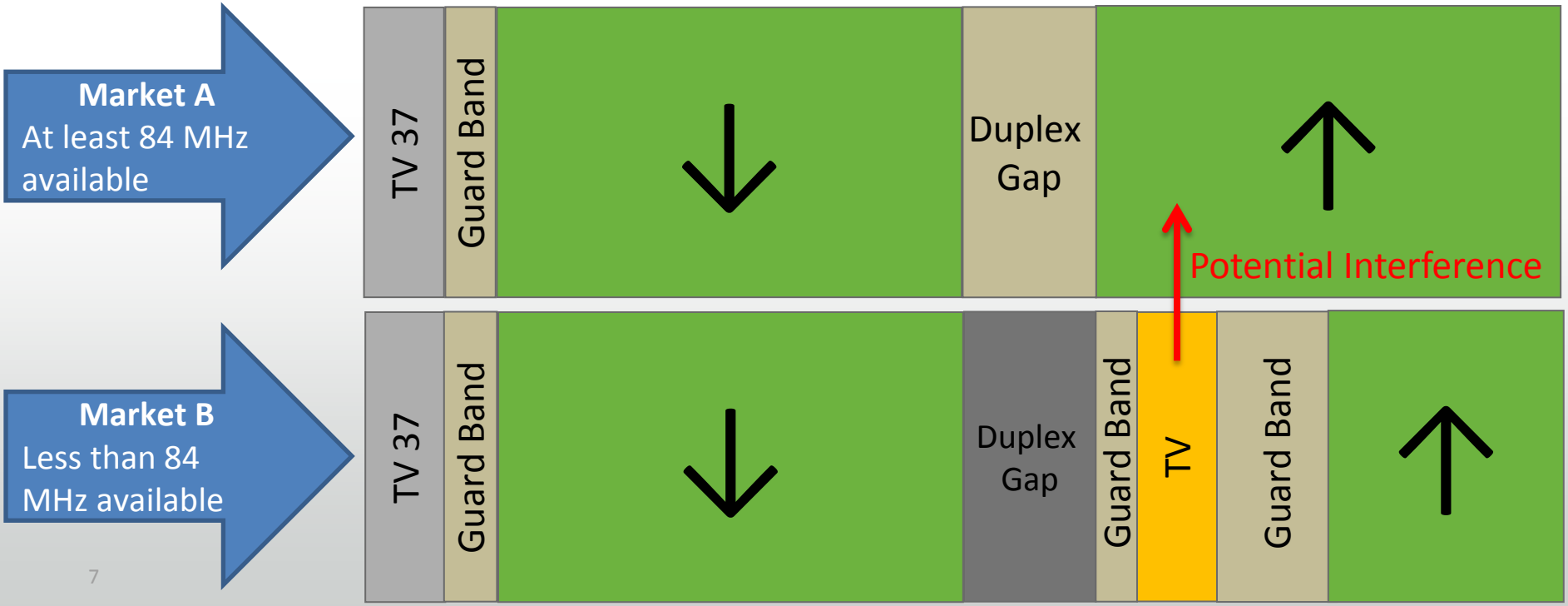
- **T-Mobile**: 35x35 MHz paired spectrum
- **Verizon**: 35x35 MHz paired spectrum
    - Verizon's plan, however, introduces two separate bands (as opposed to overlapping filters), which introduces interoperability and fungibility concerns
- **AT&T/Qualcomm**: 25x25 MHz paired spectrum
    - "Lowest Common Denominator" band plan
    - Competitively sub-optimal by only allowing for two 10x10 MHz aggregations
- **Sprint**: 0 MHz paired spectrum (70+ MHz TDD spectrum)
    - Widely opposed in the record
    - TDD is not as flexible as it initially seems (guard periods, synchronization requirements, fixed uplink/downlink ratios, and filter limitations)

“Contingent” Band Plan

- T-Mobile remains optimistic that more than 84 MHz of spectrum will be cleared in most markets
- If less than 84 MHz of spectrum clears in a substantial number of markets, T-Mobile is willing to consider other band plans
    - No single band plan can be optimized for both high and low clearing scenarios
    - Verizon similarly supports a contingent band plan
- A contingent band plan allows the Commission to avoid adopting a “lowest common denominator” band plan before the auction even begins

Market Variability is Manageable

- Problems of adjacent market interference are overstated
- This type of interference poses no threat to broadcast operations
- Estimated separation distances of 110 – 360 km between broadcast and mobile stations can protect mobile operations
    - Advanced mitigation techniques such as orthogonal polarization and interference cancellation could further reduce separation distances



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Spectrum Cap

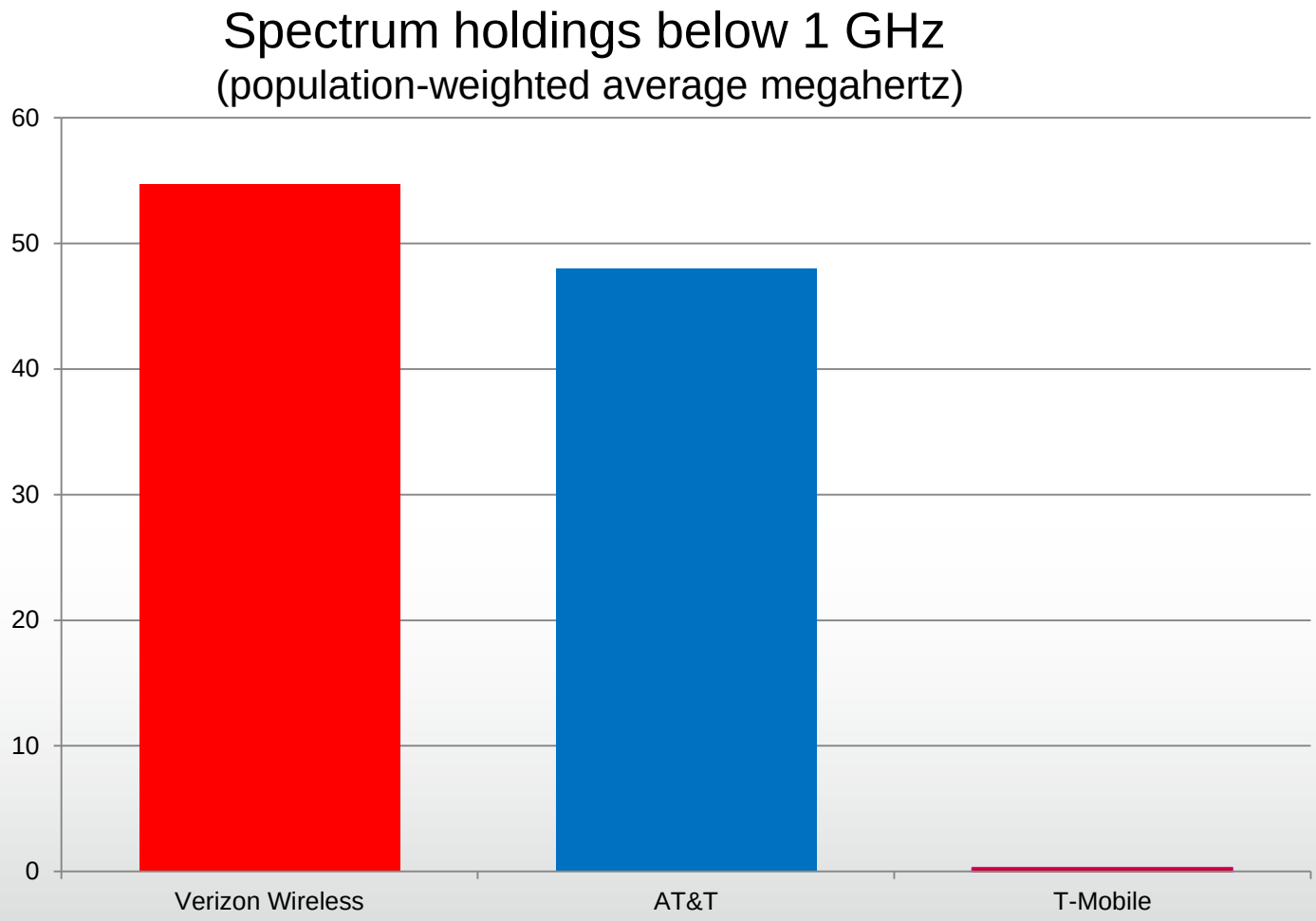
Advantages of Spectrum Caps

- Every commenter in the proceeding agrees there should be some limits on spectrum aggregation
  - Differences in 1/3 screen vs. 1/3 cap
- Clear auction rules with certain application can avoid competitive distortions that would arise from an after-the-fact review of auction results
  - Case-by-case competition reviews make more sense for secondary market transactions that take place after time passes and circumstances change since the original spectrum allocation, and that are less complex than auctions
- Spectrum caps can encourage auction participation, so need not reduce auction revenues and could increase them
  - Spectrum caps can encourage auction participation by firms under the cap
  - Spectrum caps may increase regulatory certainty, thereby encouraging more aggressive bidding by large incumbent firms

Low-Frequency Spectrum is Critical

- The superior propagation characteristics of low-frequency spectrum allows carriers to achieve wider coverage areas and better in-building penetration
    - In its *ex parte* submission, for example, the Antitrust Division of the United States Department of Justice recognized the importance of low-frequency spectrum to competition
- A large incumbent may disadvantage rivals (raising their production costs) by denying them access to low-frequency spectrum
    - The cost-penalty for providing service without using a mix of low-frequency (coverage) and high-frequency (capacity) spectrum is likely asymmetric: cost is likely higher for providers that mainly employ high-frequency spectrum

Two Carriers Hold the Lion's Share of Low-Frequency Spectrum



Sixteenth Wireless Competition Report, WT Docket No. 11-186, ¶ 118 (rel. Mar. 21, 2013).

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Excessive Concentration Harms the Public

- In highly concentrated, capital intensive markets, dominant firms have a strong economic interest in maintaining and increasing market power
- Excluding rivals allows dominant firms to charge more for existing service and reduces competitive pressure to innovate and invest in new offerings
- Absent some type of limit on acquiring critical spectrum resources, the two largest wireless carriers will have an incentive to foreclose competitors from acquiring the low-frequency resources they need to compete
- A one-third below 1 GHz spectrum aggregation limit would not only give effect to the Commission's statutory obligations to "avoid excessive concentration of licensees" and to distribute licenses to "a wide variety of applicants," but also would likely increase participation and, T-Mobile believes, increase auction revenues and the amount of spectrum cleared

T-Mobile's Proposed Spectrum Aggregation Limit & the Dynamic Market Rule

- T-Mobile has proposed an aggregation limit on spectrum purchases at auction of one-third of all spectrum available below 1 GHz
- T-Mobile has never sought to exclude AT&T and Verizon from participating in the 600 MHz auction, which would create unfavorable economics for T-Mobile
    - In fact, T-Mobile has proposed that no matter how consolidated AT&T & Verizon's holdings are in a particular market, the two carriers should be able to acquire minimum of one 5x5 MHz block of spectrum
- T-Mobile believes that this spectrum aggregation limit would promote auction revenues and increase the amount of spectrum cleared for mobile wireless use
- However, T-Mobile has proposed the "Dynamic Market Rule" – a mechanism that places the spectrum aggregation limit to a market test